TROUBLE SHOOTING
for KH-4500

KIWA MACHINERY CO., LTD.

Ver. 22-01

The purpose of this document is to help the customers know the meaning of Alarms/Messages that appear on the screen of the machine and take measures to solve the problem.

The following format is used in the document:

Alarm/message number and its text displayed on the screen

No. ****　　**********

Description/Possible Causes	Remedy
(This area explains the meaning of the alarm/message, listing possible causes of the trouble.)	(This area shows recommended measures to cope with the trouble. Basically, follow the steps in the indicated order, but you may have to go back and forth in some cases.)

No.1000 HYD CIRCUIT BREAKER OFF<CB8>

Description/Possible Causes	Remedy
Circuit protector <CB8> went off because of the following: 1. Fault current on 200V lines (L2-9, L3-9) 2. Failure of Circuit protector <CB8>	1. Turn Circuit protector ON. If it turns OFF at once, check for fault current on 200V lines (L2-9, L3-9). If there is leak, repair it. As this 200V line is used for Hydraulic solenoid valves, also check if there is a burnt solenoid. 2. If Circuit protector <CB8> turns OFF at once or after a while without any fault current, replace the circuit protector.

No.1001 Y AXIS BRAKE CIRCUIT OFF<CB6>

Description/Possible Causes	Remedy
Circuit protector <CB6> went off because of the following: 1. Work light <FL0> failed and leaked electricity. 2. Switching regulator <P3> failed causing overcurrent. 3. Brake for Y-axis servo motor failed causing overcurrent. 4. Failure of Circuit protector <CB6>	1. If Work light didn't turn ON before the alarm, replace the lamp of Work light. 2. Remove HP-E and HP-N from Switching regulator <P3> and turn Circuit protector <CB6> ON. If it turns OFF at once, replace Switching regulator <P3>. 3. If Switching regulator is OK, remove a) wires for Work light (Y54C, HN-E) on Terminal block TC4, and b) wires for Y-axis brake (HPY, HN-E) on Terminal block TB5, then turn Circuit protector ON. If it turns OFF at once, relace Serge killers SAB, SKC. 4. If Serge killers are OK, put wires for Work light back, and turn Circuit protector ON. If it turns OFF, replace Work light wires. If Work light wires are OK, put wires for Y-axis brake back. If Circuit protector turns OFF, just remove the connector for brake from Servo motor and turn Circuit protector ON. If it turns OFF, replace Cable of Y-axis brake. Otherwise, replace Y-axis servo motor. 5. If Circuit protector turns OFF sometime after turned ON, replace Circuit protector.

No.1002 AC200V BREAKER OFF<NFB3>

Description/Possible Causes	Remedy
Breaker <NFB3> went off because of the following: 1. Fault current on 200V lines (L1-5, L2-5, L3-5) 2. Failure of Breaker <NFB3>	1. Check for fault current on 200V lines (L1-5, L2-5, L3-5). If there is leak, repair it. 2. If Breaker <NFB3> turns OFF at once or after a while without any fault current, replace the Breaker.

No.1003 HYD MAGNET COIL DOWN<MC7, OL7>

Description/Possible Causes	Remedy
NC is ready and there is a command to start Hydraulic pump, but Electromagnetic switch <MC7> for Hydraulic pump doesn't work because of the following: 1. Thermal relay <OL7> tripped because of fault current on the pump side or failure of the thermal relay itself. 2. Electromagnetic switch <MC7> is defective.	1. If Thermal relay <OL7> tripped, press its reset switch. If it trips again, check for electric leak on the hydraulic pump. If there is leak, fix it by replacing the hydraulic pump, etc. If no leak, replace the thermal relay. 2. If Thermal relay is OK, replace Electromagnetic switch <MC7>.

No.1004 ABNORMAL OUTPUT VOLTAGE OF 24V DC

Description/Possible Causes	Remedy
Abnormal voltage on 24V DC supplied to I/O link unit because of the following: 1. Switching regulator <P1> is defective. 2. Voltage dropped due to short circuit of cables.	1. Check the voltage between HP and HN. If it is 23.5 to 24V (correct range), replace I/O Link unit. 2. If the voltage is not correct, remove wires of HP and HN from Switching regulator <P1> and check its output voltage. If it is not correct, relace the switching regulator. If the output voltage is correct, there is short circuit somewhere. Find it and repair it.

No.1005 ABNORMAL 24V DC OUTPUT (Y ADDRESS) SUCH AS GROUNDING

Description/Possible Causes	Remedy
Output signal from I/O unit is grounded because of the following: 1. The cable is damaged. 2. Solenoid valves, Electromagnetic switches or Relays are defective.	1. Identify the path of cables/wires by addresses indicated on the electric diagram. 2. Check the cables/wires for damages and grounding. If cables/wires are OK, replace the device (Solenoid valves, Electromagnetic switches, or Relays) to which the cables/wires are connected.

No.1010 AIR PRESSURE IS LOW<PS4>

Description/Possible Causes	Remedy
Low pressure of the air suppled to the machine was detected because of the following: 1. The diameter of the hose that supplies air to the machine is small and when other facilities work, the air pressure gets low (air supply is insufficient). 2. The air compressor at the customer is defective. 3. Pressure is not confirmed due to failure of the pressure sensor.	1. Check if the customer's air compressor stopped because of failure or overheat. 2. Check the indication of Pressure sensor <PS4>. If it is low, adjust the regulator to increase the pressure. 3. If the indication of pressure is correct, monitor the pressure indicated on the pressure sensor while running the machine. If the pressure gets low when a lot of air is consumed such as using an air gun (connected to the same line) or at APC, air supply is not sufficient. Secure necessary air supply by using larger hoses, etc. 4. If there is no problem in air supply, replace the pressure sensor.

No.1015 PLT UP/DOWN NO-DETECT<LS7,8>

Description/Possible Causes	Remedy
Completion of ascending or descending movement of pallets cannot be confirmed because of the following: 1. Pallet up/down proximity sensors <LS7 or LS8> are defective. 2. The pallets do not go down because of failure on Solenoid valve <SOL24> or its driving relay <CR20>. 3. Seals in the pallet up/down cylinder are worn.	1. Clean Sensors <LS7 and LS8>. If that doesn't work, replace them. 2. If the pallets do not go up or down, replace Solenoid valve <SOL23 or SOL24>, or its driving relay <CR19 or CR20>. 3. If Solenoid valves, Relays and Sensors are OK, replace Seals in the pallet up/down cylinder.

No.1020 M CODE NOT APPLICABLE

Description/Possible Causes	Remedy
You tried to use an unusable M code in the machining program.	Check the machining program.

No.1030 STOP AS ATC ALARM!

Description/Possible Causes	Remedy
This alarm appears together with one of the following messages: ● No. 1031 ● No. 1032 ● No. 1033 ● No. 1035 ● No. 1036 ● No. 1100 ● No. 1110 Also, it appears ● when there is something wrong with magazine data, or ● when the magazine goes too far.	Refer to Remedy for the alarm of the accompanying number.

No.1031 ATC MOVEMENT OVERTIME<TMR15>

Description/Possible Causes	Remedy
ATC operation is taking too much time because of the following: 1. ATC arm stopped due to failure of ATC gear box. 2. ATC single arm stopped due to its malfunction (only for machines with ATC single arm). 3. Tool cannot be transferred due to wrong detection or failure of Tool detection sensors (only for machines with ATC single arm). 4. ATC arm doesn't work due to failure of Servo amplifier/motor for ATC gear box.	1. If the alarm occurred while the ATC arm was changing tools, refer to Remedy of Alarm No. 1032. 2. If the alarm occurred while the ATC single arm was changing tools, refer to Remedy of Alarm No. 1120.

No.1032 W. ARM MOVEMENT OVERTIME<TMR16>

Description/Possible Causes	Remedy
Rotation of ATC arm is taking too much time because of the following: 1. Failure of ATC gear box. 2. Failure of Servo amplifier/motor for ATC gear box.	1. Remove the tool from ATC arm, and set Keep Relay K54.7 for "1". Then change Bit "0" of NC Parameter No. 3115's WA axis from "1" to "0". Select the 5th axis in Handle mode and turn the ATC arm while checking the load of WA axis on the monitor screen. If the ATC arm turns without excessive load, move the ATC arm back to its home position, and set the Keep Relay and Parameter back to the original status. 2. If ATC arm doesn't move at all, check Address G130.4 on Diagnostic screen; if G130.4 is "0", check if Addresses R42.4 and R112.5 are both "1" or not. If R42.4 is "0", check APC Sensors (X6.0 to X6.5 and X7.6, X7.7). If R112.5 is "0", check Sensors (X6.6 and X6.7) for ATC shutter. Some might stay "ON", or some might not turn "ON" when it should. 3. If ATC arm doesn't move with G130.4 being "1", remove ATC arm motor from ATC gear box and check if the motor rotates alone. If it does, the ATC gear box is defective and needs repair. If the motor doesn't rotate, either the motor or its amplifier is defective and needs replacement.

No.1033 SPINDLE TOOL CL/UCL ALARM<TMR17>

Description/Possible Causes	Remedy
Spindle clamp/unclamp operation is taking too much time because of the following: 1. Spindle clamp/unclamp condition cannot be checked due to failure, loosening or chip accumulation on Sensors <LS1/LS2> for Spindle clamp/unclamp confirmation). 2. Spindle clamp/unclamp is impossible due to failure of Solenoid valves <SOL20/SOL21> or their driving Relays <CR10/CR11>. 3. Drawbar cannot be pushed due to wear on O-rings of Spindle unclamp cylinder. 4. Spindle unclamp cylinder cannot push the drawbar because of damage on Belleville springs.	1. Check if chips are attached to Sensors <LS1/LS2>, or if the sensors are loose and wobble. Put a minus driver closer to the sensor and check if the green light turns on. If it doesn't, replace the sensor. 2. Check if Spindle unclamp cylinder moves properly. If it doesn't, replace Solenoid valves <SOL20 /SOL21>. If it still doesn't move properly, replace Relays < CR10/CR11>. 3. If Sensors, Solenoid valves and Relays are OK but Drawbar is still not pushed well, check Drawbar and O-rings of Spindle unclamp cylinder, and replace them as necessary.

No.1034 TOOL POT MOVEMENT OVERTIME

Description/Possible Causes	Remedy
Transfer of Tool pot between Magazine and ATC arm is taking too much time because of the following: 1. The machine cannot confirm completion of the tool pot movement due to failure or loosening of Cylinder sensors <LS16/LS17>. 2. Tool pot cannot move due to failure of Solenoid valves <SOL30/SOL31> or their driving relays <CR26/CR27>. 3. Tool pot stopped in the middle due to damage in the driving mechanism including Cylinder shaft.	1. Check if Sensors <LS16/LS17> for Pot cylinder are loosened or not. If they are not loosened, replace Sensors. 2. If Tool pot doesn't move, check if Solenoid valves <SOL30/SOL31> are working or not. If they are not working, replace them or Relays for them. 3. If Tool pot doesn't move despite the solenoid valves working well, repair the driving mechanism, such as replacing the cylinder. If the machine cannot index the magazine pot correctly on standard machines (without a single arm), adjust the magazine zero point.

No.1035 SPINDLE ROTATION ALARM

Description/Possible Causes	Remedy
During spindle rotation, one of the following occurred: - Spindle unclamp sensor <LS1> turned ON. - Spindle clamp sensor <LS2> turned OFF. Because of: 1. Failure or loosening of the sensor. 2. Failure of Solenoid valves <SOL20/SOL21>. 3. Failure of Relays <CR10/CR11> that drive the solenoid valves.	1. Check if chips are attached to Sensors <LS1/LS2>, or if the sensors are loose and wobble. Put a minus driver closer to the sensor and check if the green light turns on. If it doesn't, replace the sensor. 2. Check if Spindle unclamp cylinder moves properly. If it doesn't, replace Solenoid valves <SOL20 /SOL21>. If it still doesn't move properly, replace Relays < CR10/CR11>. 3. If Sensors, Solenoid valves and Relays are OK, but Drawbar is not pushed well, check Drawbar and O-rings of Spindle unclamp cylinder, and replace them as necessary.

No.1036 W. ARM SERVO CONTROL ERROR

Description/Possible Causes	Remedy
Error in controlling of ATC arm because of the following: 1. Inappropriate setting of Parameters	1. Check if the parameters are correctly set.

No.1037 ATC SHUTTER MOVEMENT ALARM<TMR25>

Description/Possible Causes	Remedy
Opening/closing operation of ATC shutter cannot be confirmed because of the following: 1. Sensors <LS9/LS10> are contaminated by chips or defective and they cannot detect open/closed status of ATC shutter. 2. Due to failure of Solenoid valves <SOL1/SOL2>, ATC shutter doesn't move. 3. Chips got in the gaps of ATC shutter and it would not open/close. 4. Cylinder for ATC shutter is leaking air and cannot lift the shutter.	1. If chips are stuck on ATC shutter or in its grooves, clean to remove them. 2. Check Sensors <LS9/LS10>. Remove chips if any. The gap between sensor and dog is too big, adjust it. By putting the tip of a minus driver on the sensor, check if its green lamp is lit. If not, replace the sensor. 3. If the sensors are OK but ATC shutter doesn't move at all, replace Solenoid valves. 4. If you can hear a sound of leaking air, replace the cylinder.

No.1038 SPINDLE COMMANDED WITH DOOR OPEN

Description/Possible Causes	Remedy
Rotation of Spindle was commanded while Operator door is closed and the lamp of Door open request pushbutton is lit. Possible causes are as follows: 1. You pressed Door open request pushbutton but didn't open it. 2. Due to failure of Limit switch <LS1> on Operator side door, the machine cannot confirm the door closed status.	1. Open Operator side door, then close it, and check if the lamp of Door open request pushbutton goes off and the door is locked when you close it. 2. There is a manual unlock key on the safety lock of Operator side door. Check if the manual unlock key is set for UNLOCK.

No.1040 TOOL SEARCH OVERTIME ALARM<TMR14>

Description/Possible Causes	Remedy
Movement of the ATC magazine is taking too much time because of the following: 1. The ATC magazine has stopped in the middle. 2. Limit switch <LS16> for “Pot on magazine side” is defective and cannot confirm the pot on the magazine side. 3. Because Limit switch <LS50> for “Single arm at home position” and/or Limit switch <56> for “Tool inserted” is not turned ON, the machine cannot confirm that Single arm is at home position. (Machines with Single arm only) 4. Limit switch <LS12> for Magazine door is defective and cannot confirm the door in the closed status. 5. Servo amplifier is defective and the ATC magazine does not move.	1. Check if the ATC magazine rotates in JOG mode. If not, turn the machine off and turn it on again and check. 2. Check Limit switches <LS16/LS50/LS56>. If their lamps are OFF, turn them ON by moving Single arm and Pot in JOG mode. 3. Check that the magazine door is closed. Also check X7.2 on Status diagnostic screen. If X7.2 is not ON, replace Door limit switch. 4. If Magazine door limit switch is OK and you cannot rotate the ATC magazine in JOG mode, replace Servo amplifier for the magazine motor.

No.1041 STOP AT HOME POSITION

Description/Possible Causes	Remedy
When Alarm No. 1031 or No. 1032 is displayed, the ATC arm is stopped at home position.	Please refer to Remedy for Alarm No. 1032.

No.1042 STOP AT TOOL CHUCKING

Description/Possible Causes	Remedy
When Alarm No. 1031 or No. 1032 is displayed, the ATC arm is stopped at the position to catch the tools.	Please refer to Remedy for Alarm No. 1032.

No.1043 STOP AT TOOL UNCLAMP

Description/Possible Causes	Remedy
When Alarm No. 1031 or No. 1032 is displayed, the ATC arm is stopped at Tool unclamp position (Tool held by the ATC arm).	Please refer to Remedy for Alarm No. 1032.

No.1044 STOP IN 180 DEG. TURN

Description/Possible Causes	Remedy
When Alarm No. 1031 or No. 1032 is displayed, the ATC arm is stopped during its 180-deg turn.	Please refer to Remedy for Alarm No. 1032.

No.1045 STOP AT TOOL CLAMP

Description/Possible Causes	Remedy
When Alarm No. 1031 or No. 1032 is displayed, the ATC arm is stopped at Tool clamp position (Tool being inserted).	Please refer to Remedy for Alarm No. 1032.

No.1046 STOP IN RTRN TO HOME POSITION

Description/Possible Causes	Remedy
When Alarm No. 1031 or No. 1032 is displayed, the ATC arm is stopped on its way to Home position.	Please refer to Remedy for Alarm No. 1032.

No.1047 IN SHUTTER CLOSE<LS10, SOL2>

Description/Possible Causes	Remedy
When Alarm No. 1037 is displayed, ATC shutter is closing.	Please refer to Remedy for Alarm No. 1037.

No.1048 IN SHUTTER OPEN<LS9, SOL1>

Description/Possible Causes	Remedy
When Alarm No. 1037 is displayed, ATC shutter is opening.	Please refer to Remedy for Alarm No. 1037.

No.1050 M6 COMMANDED AT T CODE ERROR

Description/Possible Causes	Remedy
A tool change M code (M6, M106 or M206) is commanded with Message No. 2050 or No. 2051 displayed on the screen.	1. If Message No. 2050 is displayed, press NC reset button and check if the previously executed T code was correct or not. 2. If Message No. 2051 is displayed, correct the duplication of tool number. (Refer to Message No. 2051.)

No.1060 AT TOOL CLAMP<LS2, SOL20>

Description/Possible Causes	Remedy
When Alarm No. 1033 is displayed, the spindle is clamping the tool.	Please refer to Remedy for Alarm No. 1033.

No.1061 AT TOOL UNCLAMP<LS1, SOL21>

Description/Possible Causes	Remedy
When Alarm No. 1033 is displayed, the spindle is unclamping the tool.	Please refer to Remedy for Alarm No. 1033.

No.1062 IN GOING TO MGZN<LS16, SOL30>

Description/Possible Causes	Remedy
When Alarm No. 1034 is displayed, the pot is moving to Magazine side.	Please refer to Remedy for Alarm No. 1034.

No.1063 IN GOING TO W. ARM<LS17, SOL31>

Description/Possible Causes	Remedy
When Alarm No. 1034 is displayed, the pot is moving to ATC arm side.	Please refer to Remedy for Alarm No. 1034.

No.1070 STOP AS APC ALARM!

Description/Possible Causes	Remedy
This alarm is displayed when the following alarms occur: ● No. 1071 ● No. 1072 ● No. 1073 ● No. 1074 ● No. 1075 ● No. 1076	Please refer to Remedy for the accompanying alarm.

No.1071 AT PALLET UNCLAMP<PS1, SOL22>

Description/Possible Causes	Remedy
Pallet unclamp status cannot be confirmed because of the following: 1. Pressure switches <PS1/PS2> for Pallet clamp/unclamp confirmation are defective and confirmation of pallet unclamp status is impossible. 2. Solenoid valve <SOL22> or its driving relay <CR18> is defective, and pallet cannot be unclamped.	1. Check X7.6 and X7.7 on Status diagnostic screen. If Pallet is in unclamped status with X7.6 being ON and X7.7 being OFF, it is normal. If not, replace the wrong pressure switch. 2. If the alarm remains, replace the solenoid valve or its relay.

No.1072 AT PALLET CLAMP<PS2, SOL40>

Description/Possible Causes	Remedy
Pallet clamp status cannot be confirmed because of the following: 1. Pressure switches <PS1/PS2> for Pallet clamp/unclamp confirmation are defective and confirmation of pallet clamp status is impossible. 2. Solenoid valve <SOL40> or its driving relay <CR34> is defective, and pallet cannot be clamped.	1. Check X7.6 and X7.7 on Status diagnostic screen. If Pallet is in clamped status with X7.6 being OFF and X7.7 being ON, it is normal. If not, replace the wrong pressure switch. 2. If the alarm remains, replace the solenoid valve or its relay.

No.1073 IN PALLET ASCENT<LS7, SOL24>

Description/Possible Causes	Remedy
Ascending status of the pallets cannot be confirmed because of the following: 1. Proximity sensors <LS7/LS8> for pallet ascent/descent are defective. 2. Solenoid valve <SOL23> or its driving relay <CR19> is defective, and pallets cannot go up. 3. Seals in Pallet up/down cylinder are worn.	Please refer to Remedy for Alarm No. 1015.

No.1074 IN PALLET DESCENT<LS8, SOL23>

Description/Possible Causes	Remedy
Descending status of the pallets cannot be confirmed because of the following: 1. Proximity sensors <LS7/LS8> for pallet ascent/descent are defective. 2. Solenoid valve <SOL24> or its driving relay <CR20> is defective, and pallets cannot go down. 3. Seals in Pallet up/down cylinder are worn.	Please refer to Remedy for Alarm No. 1015.

No.1075 IN PALLET ROTATION 1<LS3, SOL25>

Description/Possible Causes	Remedy
Machine cannot confirm that Pallet No. 1 has moved inside the machine because of the following: 1. Pallet number confirmation sensor <LS3> is not ON, and completion of pallet rotation for Pallet No. 1 cannot be confirmed. 2. Due to failure of Solenoid valve <SOL25> or its driving relay <CR21>, pallets cannot turn to change places. 3. Due to failure of the APC cylinder or rack and pinion mechanism, pallets cannot turn to change places.	1. Check X6.0 and X6.1 on Status diagnostic screen. If X6.0 is ON and X6.1 is OFF with Pallet No. 1 inside the machine, it is OK. If not, adjust the position of Sensor <LS3> on the APC cylinder, or replace it as necessary. 2. If pallets do not turn to change places, replace Solenoid valve or Driving relay. 3. If that still doesn't solve the problem, replace the APC cylinder or rack and pinion.

No.1076 IN PALLET ROTATION 2<LS4, SOL26>

Description/Possible Causes	Remedy
Machine cannot confirm that Pallet No. 2 has moved inside the machine because of the following: 1. Pallet number confirmation sensor <LS4> is not ON, and completion of pallet rotation for Pallet No. 2 cannot be confirmed. 2. Due to failure of Solenoid valve <SOL26> or its driving relay <CR22>, pallets cannot turn to change places. 3. Due to failure of the APC cylinder or rack and pinion mechanism, pallets cannot turn to change places.	1. Check X6.0 and X6.1 on Status diagnostic screen. If X6.0 is OFF and X6.1 is ON with Pallet No. 2 inside the machine, it is OK. If not, adjust the position of Sensor <LS4> on the APC cylinder, or replace it as necessary. 2. If pallets do not turn to change places, replace Solenoid valve or Driving relay. 3. If that still doesn't solve the problem, replace the APC cylinder or rack and pinion.

No.1077 UNDER PALLET TURNING UP LS OFF〈LS7〉

Description/Possible Causes	Remedy
There is no confirmation of Pallets Up during APC because of the following: 1. Due to failure of Sensor <LS7> for Pallets Up confirmation, machine cannot confirm Pallets Up status. 2. Seals in Pallet up/down cylinder are worn, and it cannot keep the pallet lifted.	1. Remove Sensor <LS7> for Pallets Up confirmation together with its stay, and check if the green lamp is lit when you put the tip of a minus driver on it. If it is lit, put it back and adjust its position. If it is not lit, replace the sensor. 2. If the sensor is OK, replace seals in Pallet up/down cylinder.

No.1080 S CODE IS INAPPROPRIATE

Description/Possible Causes	Remedy
S code is inappropriate because of the following: 1. Speed of “0” (S0) was specified. 2. After turning the machine on, M3 or M4 was commanded without specifying S code.	1. Check the program. 2. Command S code.

No.1090 K57.2=1 IS BEING SET

Description/Possible Causes	Remedy
M3, M4, M71 or M72 was commanded with Keep Relay K57.2 of PMC parameter set for “1”.	Set Keep Relay K57.2 for “0”.

No.1100 MGZN BETA UNIT ALARM<SVU>

Description/Possible Causes	Remedy
Alarm occurred in Servo amplifier for ATC magazine because of the following: 1. Due to low voltage of Backup batteries, Magazine origin was lost. 2. Breaking of Signal cable for Magazine motor 3. Failure of Servo amplifier 4. Cooling fan stopped due to dust.	1. Find the alarm number on Power Mate Manager screen. 2. Handle the alarm according to FANUC's manual for Beta amplifier with I/O link. 3. If the magazine motor has lost the magazine origin, set it again according to our Machine Maintenance manual.

No.1101 ABSOL. PULSE CODER BATTERY IS LOW

Description/Possible Causes	Remedy
There is a battery unit (BAT1) for Absolute pulse coders that memorizes motor positions. The voltage of the battery unit gets low.	While the machine is powered ON with NC screen displayed, replace all the four pcs. of Size D dry cell batteries for Battery unit (BAT1) with new ones and press Reset.

No.1102 NC MEMORY BACKUP BATTERY IS LOW

Description/Possible Causes	Remedy
There is a battery unit (BAT2) that memorizes NC data. The voltage of the battery unit gets low.	While the machine is powered ON with NC screen displayed, replace all the two pcs. of size D dry cell batteries for Battery unit (BAT2) with new ones and press Reset.

No.1103 SPINDLE TOOL SPECIFIED BY M103

Description/Possible Causes	Remedy
Alarm of Spindle tool being set as Large diameter tool by M103 because of the following: 1. The tool of the specified T number is in the spindle. 2. T number accompanying M103 is mistaken.	1. Check if the T number is correct or not. 2. If the tool of the specified T number is in the spindle, move it to the magazine.

No.1110 SPINDLE ORIENTATION OVERTIME

Description/Possible Causes	Remedy
Spindle orientation is incomplete or taking too much time because of the following: 1. Failure of the sensor within the spindle motor 2. Breaking of Spindle signal cable 3. Failure of Spindle amplifier	1. Replace Spindle signal cable. 2. If it doesn't solve the problem, replace Spindle amplifier. 3. If it still doesn't solve the problem, replace the sensor in the spindle motor.

No.1120 ATC 2 (SINGLE ARM) ALARM!

Description/Possible Causes	Remedy
Single arm doesn't work because of the following: 1. Due to failure of solenoid valves <SOL542> to <SOL547> or their driving relays <CR62> to <CR67>, Single arm doesn't move. 2. Due to failure of Sensors <LS50>, <LS51>, <LS52>, <LS55> and/or <LS56> on Single arm, confirmation of its action cannot be achieved. 3. When Single arm moves from Home position to Intermediate pot, Photo sensor <LS53> for Magazine pot is OFF. 4. When Single arm moves from Magazine pot to Intermediate pot, Photo sensor <LS54> for Intermediate pot is OFF. 5. When Single arm moves from Intermediate pot to Magazine pot, Photo sensor <LS53> for Magazine pot is OFF.	1. If Single arm has stopped with a tool taken out of the pot, check Photo sensor. If both of its orange and green lamps are OFF, clean the photo sensor. If it doesn't solve the problem, adjust the position of Photo sensor so that both orange and green lamps are lit on condition: a) the tool is pulled out, or b) there is no tool in the pot. If it still doesn't solve the problem, replace the photo sensor. 2. If the guide shafts of Single arm are dirty, clean them. 3. If Single arm is stuck on its way to Home position, a) check the shape of the tool holder, b) check that the pot is aligned with the grippers of Single arm, and c) adjust the magazine origin (zero point). 4. If Single arm just doesn't move, check and replace Solenoid valves and their driving relays as necessary. 5. If it still doesn't solve the problem, disconnect Single arm from its cylinder and check if Single arm slides smoothly on its guides. If it does, replace the cylinder.

Note: This alarm only applies to machines with Single arm for ATC.

No.1125 M6 COMMAND WITH NO TOOL IN MG

Description/Possible Causes	Remedy
There is no tool in the called pot because of the following: 1. A wrong tool number is being called. 2. There is no tool in the magazine pot. 3. Failure of Photo sensor <LS53>.	1. Check the program. 2. Check that the desired tool is in the magazine. 3. If above doesn't solve the problem, replace Photo sensor.

Note: This alarm only applies to machines with Single arm for ATC.

No.1128 A SAME TOOL # IN WAITING POT & SP

Description/Possible Causes	Remedy
Tool number in Intermediate pot and that in Spindle are the same because of the following: 1. Due to ATC recovery operation, power failure, etc., the tool data in the NC got mixed up.	1. Remove all the tools from Magazine and Spindle, and execute M100 to clear the magazine data. Execute M101 to set the magazine data in order. (Set Memory protect key switch for "Cancel" before executing these M codes.) After M101, set the tools in the magazine/spindle again.

Note: This alarm only applies to machines with Single arm for ATC.

No.1131 IN MGZN TOOL CHUCKING

Description/Possible Causes	Remedy
No.1120 ATC2(SINGLE ARM) ALARM occurred when Single arm tried to catch a tool in the magazine pot.	Refer to Remedy of No.1120 ATC2(SINGLE ARM) ALARM.

Note: This alarm only applies to machines with Single arm for ATC.

No.1132 IN PULL-OUT FROM MGZN

Description/Possible Causes	Remedy
No.1120 ATC2(SINGLE ARM) ALARM occurred when Single arm tried to pull out a tool from the magazine pot.	Refer to Remedy of No.1120 ATC2(SINGLE ARM) ALARM.

Note: This alarm only applies to machines with Single arm for ATC.

No.1133 FROM MGZN TO WAIT-POT

Description/Possible Causes	Remedy
No.1120 ATC2(SINGLE ARM) ALARM occurred when Single arm tried to move a tool from Magazine pot to Intermediate pot.	Refer to Remedy of No.1120 ATC2(SINGLE ARM) ALARM.

Note: This alarm only applies to machines with Single arm for ATC.

No.1134 IN PUTTING INTO WAIT-POT

Description/Possible Causes	Remedy
No.1120 ATC2(SINGLE ARM) ALARM occurred when Single arm tried to insert a tool into the intermediate pot.	Refer to Remedy of No.1120 ATC2(SINGLE ARM) ALARM.

Note: This alarm only applies to machines with Single arm for ATC.

No.1135 IN HOME-POS RETURN

Description/Possible Causes	Remedy
No.1120 ATC2(SINGLE ARM) ALARM occurred when Single arm tried to return to Home position from the intermediate pot.	Refer to Remedy of No.1120 ATC2(SINGLE ARM) ALARM.

Note: This alarm only applies to machines with Single arm for ATC.

No.1136 IN WAIT-POT TOOL CHUCK

Description/Possible Causes	Remedy
No.1120 ATC2(SINGLE ARM) ALARM occurred when Single arm tried to catch a tool in the intermediate pot.	Refer to Remedy of No.1120 ATC2(SINGLE ARM) ALARM.

Note: This alarm only applies to machines with Single arm for ATC.

No.1137 PULL-OUT FROM WAIT-POT

Description/Possible Causes	Remedy
No.1120 ATC2(SINGLE ARM) ALARM occurred when Single arm tried to pull out a tool from the intermediate pot.	Refer to Remedy of No.1120 ATC2(SINGLE ARM) ALARM.

Note: This alarm only applies to machines with Single arm for ATC.

No.1138 FROM WAIT-POT TO MGZN

Description/Possible Causes	Remedy
No.1120 ATC2(SINGLE ARM) ALARM occurred when Single arm tried to move a tool from Intermediate pot to Magazine pot.	Refer to Remedy of No.1120 ATC2(SINGLE ARM) ALARM.

Note: This alarm only applies to machines with Single arm for ATC.

No.1139 IN PUTTING INTO MGZN

Description/Possible Causes	Remedy
No.1120 ATC2(SINGLE ARM) ALARM occurred when Single arm tried to insert a tool into the magazine pot.	Refer to Remedy of No.1120 ATC2(SINGLE ARM) ALARM.

Note: This alarm only applies to machines with Single arm for ATC.

No.1140 IN MGZN POT TOOL HOME RETURN

Description/Possible Causes	Remedy
No.1120 ATC2(SINGLE ARM) ALARM occurred when Single arm tried to return to Home position from the magazine pot.	Refer to Remedy of No.1120 ATC2(SINGLE ARM) ALARM.

Note: This alarm only applies to machines with Single arm for ATC.

No.1141 EMPTY CLAMP ALARM AT M CODE CHECK

Description/Possible Causes	Remedy
When executing M28, the machine cannot confirm clamping of the tool in Spindle because of the following: 1. There is no tool in Spindle at M28. 2. Bad adjustment or failure of Tool presence sensor. 3. M28 is executed on machines with BT/CAT spindles.	1. Check if a tool is clamped in the spindle. 2. If this alarm occurs even if a tool is clamped in the spindle, adjust the sensitivity of Sensor amplifier in the electric cabinet; lower the sensitivity to the extent that the sensor doesn't turn ON. If the sensor doesn't turn OFF by adjustment of sensitivity, adjust the sensor position. If the sensor still doesn't turn OFF, replace the sensor.

Note: This alarm only applies to machines with optional HSK Spindle.

No.1142 SPINDLE TOOL IS EMPTY

Description/Possible Causes	Remedy
Spindle rotation is commanded with no confirmation of a tool in Spindle because of the following: 1. There is no tool in Spindle. 2. Bad adjustment or failure of Tool presence sensor	1. Check if a tool is clamped in the spindle. 2. If this alarm occurs even if a tool is clamped in the spindle, adjust the sensitivity of Sensor amplifier in the electric cabinet; lower the sensitivity to the extent that the sensor doesn't turn ON. If the sensor doesn't turn OFF by adjustment of sensitivity, adjust the sensor position. If the sensor still doesn't turn OFF, replace the sensor.

Note: This alarm only applies to machines with optional HSK Spindle.

No.1200 THML-RLY OVERLOAD<OL1,3>

Description/Possible Causes	Remedy
Thermal relay <OL1> or <OL3> for 1st or 3rd coolant pump, respectively, tripped because of the following: 1. Overload or fault current of Coolant pump 2. Failure of Thermal relay	1. Press Rest button of Thermal relay <OL1> or <OL3>. 2. If the coolant pump is clogged with chips, clean it. 3. If this alarm repeatedly occurs, measure the electric current of 1st or 3rd coolant pump motor. Also measure its insulation resistance to check for fault current. If the insulation resistance is too low, or the electric current is too large even though there is no clogging, replace the coolant pump. 4. If the coolant pump is OK, replace the thermal relay.

No.1210 AXIS LUB. OIL PRESSURE LOW<M0(PS3)>

Description/Possible Causes	Remedy
Discharge pressure of Axis lubrication pump doesn't rise, or it keeps raised because of the following: 1. Suction filter in the lubrication pump is clogged. 2. Oil leakage due to breakage on the hoses of Lubrication oil circuit. 3. Air gets in the hoses of Lubrication oil circuit. 4. Failure of Pressure switch <PS3> for Lubrication pump. 5. Failure of Lubrication pump <M0> itself.	1. Clean or replace, as necessary, the filter of Lubrication pump <M0>. 2. Check the hoses for oil leakage, and repair it if necessary. 3. Check if there is air trapped in the hoses for lubrication. If there is, remove it. 4. Check if Pressure switch <PS3> turns ON when the lubrication pump is activated by studying X8.1 on Status diagnostic screen. Also, check if Pressure switch <PS3> stays ON when the lubrication pump is not working, which is abnormal. If <PS3> is OFF while Pump is working, or it is ON while Pump is not working, replace the lubrication pump. 5. Activate the lubrication pump with its discharge port plugged, and check the pressure on its pressure gage. If pressure doesn't rise, replace the lubrication pump.

No.1211 LUB. AIR PRESSURE IS LOW<PS5>

Description/Possible Causes	Remedy
Air pressure for Oil and Air lubrication system gets low because of the following: 1. Due to failure of the factory's air compressor, etc., air pressure for the machine gets low. 2. The amount of air supplied by the factory is not enough. 3. Failure of Pressure switch <PS5> 4. Failure of Solenoid valve <SOL7>	1. Check the pressure of air supplied by the factory. 2. Check fluctuation of the air pressure indicated on Pressure switch <PS5>. If the pressure gets low during APC or ATC, the amount of air supply is not enough. In such a case, use a larger compressor, or make the pipes/hoses for factory air larger to increase the flow rate of air. 3. If the indication of Pressure switch <PS5> doesn't make sense, replace the pressure switch. 4. After alarm is released by pressing Reset button, check if air is coming from Solenoid valve <SOL7>. If not, replace the solenoid valve.

No.1213 SP LUB. OIL PS LOW<M20(PS154)>

Description/Possible Causes	Remedy
Discharge pressure of Spindle lubrication pump doesn't rise, or it keeps raised because of the following: 1. Suction filter in the lubrication pump is clogged. 2. Oil leakage due to breakage on the hoses of Lubrication oil circuit. 3. Air gets in the hoses of Lubrication oil circuit. 4. Failure of Pressure switch <PS154> for Lubrication pump. 5. Failure of Lubrication pump <M20> itself.	1. Clean or replace, as necessary, the filter of Lubrication pump <M20>. 2. Check the hoses for oil leakage, and repair it if necessary. 3. Check if there is air trapped in the hoses for lubrication. If there is, remove it. 4. Check if Pressure switch <PS154> turns ON when the lubrication pump is activated by studying X15.4 on Status diagnostic screen. Also, check if Pressure switch <PS154> stays ON when the lubrication pump is not working, which is abnormal. If <PS154> is OFF while Pump is working, or it is ON while Pump is not working, replace the lubrication pump. 5. Activate the lubrication pump with its discharge port plugged, and check the pressure on its pressure gage. If pressure doesn't rise, replace the lubrication pump.

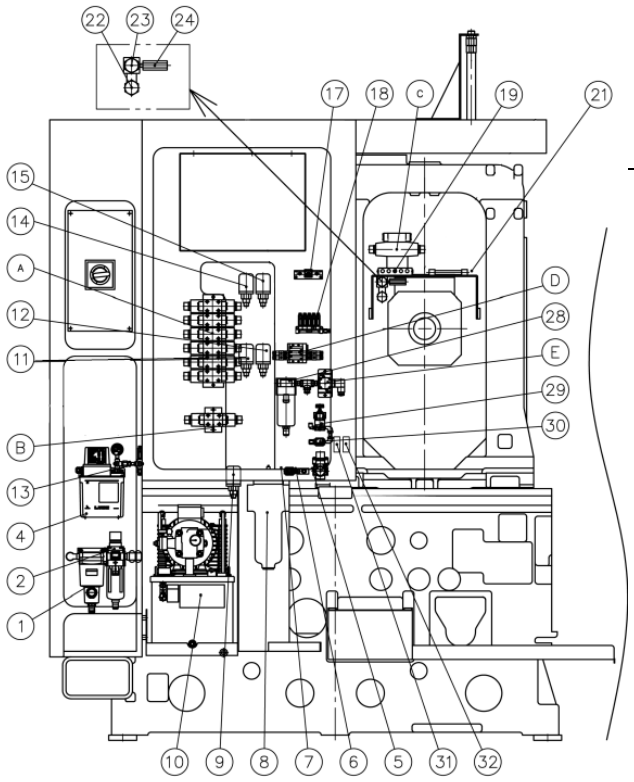
No.1260 LACK OF COOLANT LEVEL

Description/Possible Causes	Remedy
The amount of coolant for Spindle core cooling system (option) is lacking because of the following: 1. Coolant level is low. 2. The filter for Spindle core cooling tank is clogged. (The coolant tank is not filled within a set time after the feeding pump is started.) 3. Failure of the float switch.	1. Check if the feeding pump is clogged. 2. Replace the bag filter attached in Spindle core cooling tank. 3. If, even though the coolant level is high enough in Spindle core cooling tank, Float switch (X14.3) does not turn ON, adjust the height of the float switch, or replace it. 4. If, even though the coolant level is high enough in Spindle core cooling tank, Float switch (X14.4) does not turn OFF, adjust the height of the float switch, or replace it.

Note: This alarm only applies to machines with optional Spindle core cooling system.

No.1300 NO PALLET SITTING<PS6>

Description/Possible Causes	Remedy
Sensor <PS6> (7 on the illustration below) for pallet sitting confirmation doesn't turn ON because of the following: 1. Chips get between Taper cones on Rotary table and Taper blocks on Pallet. 2. Insufficient air pressure 3. Insufficient air flow rate 4. Air leaking from the rotary joint area of Rotary table 5. Air leaking from gaps between Pallet and Taper blocks on it	1. Move the pallet to the APC position (perform G91G30Z0B0), and raise the pallet in Manual operation. Then open the operator door and clean surfaces between Rotary table and Pallet. 2. Disconnect the hose (on Rotary table side) from Sensor <PS6>, and plug the opened outlet of the sensor. Check if the pressure indicated on the sensor goes up to 0.15 MPa. If not, adjust Regulator (5 below) to raise the pressure. 3. If air pressure is OK, check the condition of Flow control valve (6 below). It should be opened by six turns from the closed position. 4. If, for reasons of machine deterioration, six turns are not enough, you may open it further until the pressure becomes 0.15 MPa. (There is a limit, though.)



No.1400 FRONT DOOR OPENED DURING APC

Description/Possible Causes	Remedy
The closed status of Front door cannot be confirmed during pallet change because of the following: 1. The manual unlock key of Limit switch <LS13> for Front door is set for UNLOCK. 2. Failure of Front door limit switch	1. Check if the manual unlock key of Limit switch <LS13> is set for UNLOCK or not. 2. Replace the door limit switch.

No.1411 B AXIS CLAMP ALARM<PS9, SOL29>

Description/Possible Causes	Remedy
The clamped status of Rotary table cannot be confirmed because of the following: 1. Due to leakage of hydraulic oil, hydraulic pressure doesn't go up. 2. Oil is leaking from Rotary table. 3. Failure of Pressure switches <PS8/PS9> 4. Failure of Solenoid valve <SOL29> or its Relay <CR25>	1. Check the oil level in the tank of Hydraulic pump. If it is low, there must be some leakage of oil. Find the place of leakage and repair it. If oil is leaking from the rotary table, contact us. 2. Check if oil is coming to the rotary table when the solenoid valve is activated. If not, the solenoid valve or its relay is defective; replace it. 3. Check the status of X9.6 and X9.7 on Status diagnostic screen while clamping the rotary table. If X9.6 stays ON, replace Pressure switch <PS8>, and if X9.7 doesn't turn ON, replace Pressure switch <PS9>.

No.1412 B AXIS UNCLAMP ALARM<PS8, SOL29>

Description/Possible Causes	Remedy
The unclamped status of Rotary table cannot be confirmed because of the following: 1. Due to leakage of hydraulic oil, hydraulic pressure doesn't go up. 2. Oil is leaking from Rotary table. 3. Failure of Pressure switches <PS8/PS9> 4. Failure of Solenoid valve <SOL29> or its Relay <CR25>	1. Check the oil level in the tank of Hydraulic pump. If it is low, there must be some leakage of oil. Find the place of leakage and repair it. If oil is leaking from the rotary table, contact us. 2. Check if oil is coming to the rotary table when the solenoid valve is activated. If not, the solenoid valve or its relay is defective; replace it. 3. Check the status of X9.6 and X9.7 on Status diagnostic screen while unclamping the rotary table. If X9.6 doesn't turn ON, replace Pressure switch <PS8>, and if X9.7 stays ON, replace Pressure switch <PS9>.

No.1414 EXIN ERROR (Y AXIS)

Description/Possible Causes	Remedy
Error occurred in Y-axis origin shift automatically performed at clamp/unclamp of Rotary table because of the following: 1. Problem of NC parameters or ladder program.	1. Please contact Kiwa.

No.1600 EMERGENCY STOP DURING AUTO OP.

Description/Possible Causes	Remedy
Machine went into Emergency stop status during automatic operation because of the following: 1. Emergency stop pushbutton is pressed intentionally or by mistake. 2. Failure of Emergency stop pushbuttons <PB45A/PB45B/PB45C> 3. Failure of Power supply module (PSM)	1. Release the Emergency stop pushbutton if pressed intentionally or by mistake. 2. If Emergency stop occurs on its own during machining operation, bypass the wiring of the emergency stop pushbutton and see how it goes. **NOTE: Be careful because it is dangerous to bypass it.** 3. If Emergency stop still occurs, replace FANUC's Power supply module.

No.1700 TOOL LIFE LIMIT IS REACHED

Description/Possible Causes	Remedy
There is a tool whose life is expired.	Reset the tool life on Tool life management screen.

Note: This alarm only applies to machines with optional Tool life management function of FANUC.

No.1868 MARPOSS UP/DOWN ALARM<LS135, 136>

Description/Possible Causes	Remedy
Machine cannot confirm up/down status of MARPOSS tool measurement system because of the following: 1. Due to accumulation of chips, up/down movement of the MARPOSS probe is hindered. 2. Flow control valve was shut due to vibration. 3. Failure of Sensors <LS135/LS136> 4. Failure of Solenoid valve <SOL73>	1. Open the lid of MARPOSS probe unit and check if chips are accumulated inside, and remove them as necessary. 2. Check if Flow control valves (follow the hoses from Solenoid valve) are opened. 3. Check X13.5 and X13.6 on Status diagnostic screen. If both are OFF, or both are ON, check and adjust or replace the Sensors on the MARPOSS pop-up cylinder. 4. If air doesn't come from Solenoid valve <SOL73>, replace the solenoid valve.

Note: This alarm only applies to machines with optional MARPOSS tool measurement system.

No.1880 SPINDLE OVER TRQ. ALARM

Description/Possible Causes	Remedy
During Spindle load monitoring by M90/M91 (option), the spindle load either exceeded the upper limit or fell below the lower limit because of the following: 1. Cutter got dull. 2. Cutter was broken. 3. The cutting conditions are too severe.	1. Refer to Message No. 2063 (too little load), and Message No. 2067 (too much load).

Note: This alarm only applies to machines with KIWA's Spindle abnormal load monitoring system (option).

No.2000 PLEASE PUSH READY BUTTON.<PB47>

Description/Possible Causes	Remedy
Emergency stop buttons are released, but the machine is not ready for operation yet.	Press NC ready pushbutton. If the message remains and the machine doesn't get ready for operation, check X21.0 on Status diagnostic screen; check if X21.0 turns ON when you press NC ready pushbutton. If it doesn't, NC Ready pushbutton is defective, or wires are broken. Replace the pushbutton or repair the wires.

No.2001 PLEASE RELEASE EMERGENCY STOP. <PB45A, 45B, 45C>

Description/Possible Causes	Remedy
The machine is in Emergency stop status.	Release all the Emergency stop pushbuttons. If the message remains, refer to Remedy of Alarm No. 1600.

No.2002 MACHINE HAS GOT READY FOR OPERATION.

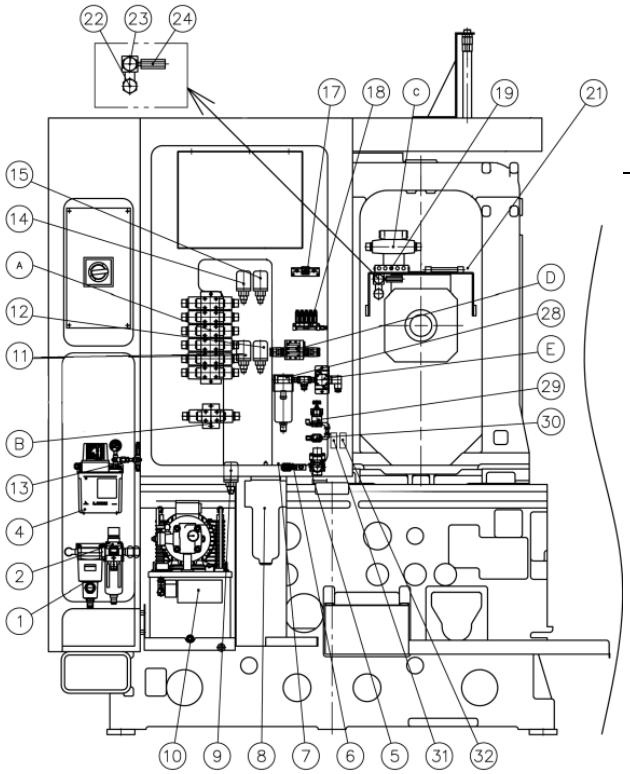
Description/Possible Causes	Remedy
The machine has become ready for operation.	(There is nothing particular to do.)

No.2003 FAN CIRCUIT DOWN. PLEASE CHECK CB3.

Description/Possible Causes	Remedy
Circuit breaker <CB3> for Cooling fans turned OFF because of the following: 1. Fault current or failure of Spindle motor fan 2. Fault current or failure of Fan at the upper part inside Electric cabinet 3. Fault current or failure of Heat exchanger on Electric cabinet door 4. Failure of Circuit breaker <CB3>	1. Replace a fan that is not turning, if any. 2. Measure the electric current of each fan, and if there is too much current, replace the fan. 3. If fans are all OK, replace the circuit breaker.

No.2004 B AXIS AIR PURGE PRESSURE IS LOW<PS126>

Description/Possible Causes	Remedy
Air pressure for air seal in B-axis rotary table is low because of the following: 1. The source air pressure gets low. 2. Air leaking from the rotary table 3. Failure of Pressure switch <PS126> (30 on the illustration below)	1. Remove the hose on the rotary table side of T-joint connected to Pressure switch <PS126>, and plug the opened port of the T-joint. Check the pressure of Regulator (29 below). If it is lower than 0.02 MPa, raise it to 0.02 MPa. Also, check that Pressure switch <PS126> indicates 0.02 MPa, too. 2. If setting of Regulator is OK, air is leaking from the rotary table. Replacement of seals of the rotary table is necessary. (If leak is not so intense, you may increase the air pressure up to 0.02 MPa and see how it goes for a while.) 3. If the display of Pressure switch is strange, or the message appears even though the pressure is normal, check the set pressure of Pressure switch. If the set pressure is correct, replace the pressure switch.



No.2016 AXIS LUB. OIL LEVEL LOW DETECTED. <M1(FS1)>

Description/Possible Causes	Remedy
Low level of oil in Lubrication pump unit (lubricating Linear guides and Ball screws) is detected because of the following: 1. The amount of oil in the tank gets low, or 2. Failure of Float switch inside the tank	1. Fill the tank with lubrication oil and press Alarm reset. 2. If you still get the message even though there is enough oil in the tank, replace the lubrication pump unit.

No.2018

BECAUSE BETA UNIT BATTERY IS LOW,
OR DUE TO DISCONNECTION OF CABLE,
MAGAZINE ZERO POINT DATA ARE LOST.
- SET IT UP WITH KEEP RELAY K30.0=1.

Description/Possible Causes	Remedy
Magazine zero point is lost because of the following: 1. Voltage of the absolute pulse coder batteries gets low, or 2. The signal cable for Magazine motor is broken.	1. While the machine is powered ON with NC screen displayed, replace all the four pcs. of Size D dry cell batteries for Absolute pulse coder with new ones. After replacement of Batteries, establish Zero point of the tool magazine according to the Machine Maintenance manual. 2. If you still get the message, replace the signal cable for Magazine motor, and establish the magazine zero point.

No.2019 SP LUB. OIL LEVEL LOW DETECTED. <M20(FS153)>

Description/Possible Causes	Remedy
Low level of oil in Lubrication pump unit (lubricating the spindle) is detected because of the following: 1. The amount of oil in the tank gets low, or 2. Failure of Float switch inside the tank	1. Fill the tank with lubrication oil and press Alarm reset. 2. If you still get the message even though there is enough oil in the tank, replace the lubrication pump unit.

No.2030 DOUBLE ARM IS NOT AT INITIAL POSITION OR SPINDLE TOOL IS NOT CLAMPED

Description/Possible Causes	Remedy
Mode other than JOG has been selected with Spindle in unclamped status or ATC arm not at home position because of the following: 1. Spindle is unclamped, or 2. ATC shutter is open AND ATC arm is not at Home position.	1. Clamp the spindle in JOG mode. 2. Bring the ATC arm to home by the M code（M167）or ATC Manual operation switch.

No.2031 ATC MAGAZINE DOOR IS NOT CLOSED. <LS12>

Description/Possible Causes	Remedy
Closed status of ATC Magazine door cannot be confirmed because of the following: 1. The magazine door is open, or 2. Failure of Limit switch <LS12> for the magazine door	1. Close the magazine door if open. 2. If you still get the message, check if the manual unlock key of Limit switch <LS12> is set for UNLOCK or not. 3. If you still get the message, replace the door limit switch.

No.2032 SPINDLE SPEED IS ABNORMALLY LOWER THAN A COMMANDED VALUE.

Description/Possible Causes	Remedy
Spindle speed was detected to be lower than the commanded value by more than the ratio set in D0030 because of the following: 1. The spindle speed decreased because the machining condition was too severe, or the cutter was worn. 2. The setting of D0030 is too strict. 3. Failure of BZ sensor for the spindle motor 4. Failure of Spindle amplifier	1. Check if the cutter is worn or not. 2. Check the machining condition and adjust the value of D0030 as necessary. 3. If you still have the message, replace Spindle amplifier or Spindle BZ sensor.

No.2033 CYCLE START DISABLE. OPERATORS DOOR IS NOT CLOSED & DOOR OPEN REQUEST BUTTON IS OFF.

Description/Possible Causes	Remedy
Closed status of Operator door cannot be confirmed because of the following: 1. Operator door is open. 2. The manual unlock key of Limit switch <LS11> for Operator door is set for UNLOCK. 3. Failure of Limit switch <LS11> for the Operator door	1. Close the operator door if open. 2. If you still get the message, check if the manual unlock key of Limit switch <LS11> is set for UNLOCK or not. 3. If you still get the message, replace the door limit switch.

No.2034 ATC INTERLOCK MAGAZINE INTERRUPT MODE

Description/Possible Causes	Remedy
Magazine interruption mode is detected because of the following: 1. ATC interruption switch <SW547> is set for ON. 2. Failure of ATC interruption switch.	1. Close the magazine door and turn ATC interruption switch OFF. 2. If the message remains, replace the interruption switch.

No.2040 BETA MAGAZINE UNIT ALARM. <SVU>

Description/Possible Causes	Remedy
Alarm occurred on Beta amplifier module for ATC magazine because of the following: 1. Magazine zero point is lost due to low battery or breakage of Signal cable for Magazine motor. 2. Failure of Beta amplifier 3. Failure of Reducing unit	1. Display the alarm screen of PMM according to Machine Maintenance manual, and check the alarm numbers. If “224” is indicated, Magazine zero point is lost; establish the magazine zero point according to the same. 2. If you have “400s” indicated on the screen, remove the magazine motor from the reducing unit and run the magazine motor by itself. a) If you still get the message, replace Beta amplifier or magazine motor. b) If the message doesn’t occur, suspect either failure of Reducing unit or Chain tension too tight; please loosen the chain tension first, and if no improvement, replace the reducing unit. 3. If you have other alarm numbers, contact us.

No.2050

T CODE ERROR.
COMMANDED T-CODE NUMBER NOT FOUND IN MAGAZINE.
CHECK TOOL NUMBERS.

Description/Possible Causes	Remedy
Tool number specified by a T code doesn't exist in the registered data because of the following: 1. You have specified a wrong T code. 2. The specified tool number is not in the data.	1. Check if the T code number is correct or not. 2. There are tool number data of Magazine registered in D5100s of PMC group data. Check if the specified T code number is included in the data. If not, modify the data and register it.

No.2051

TOOL NUMBER COINCIDE
PLEASE CHECK TOOL NUMBER DATA SETTING.
AFTER RESETTING TOOL NUMBER,
IT WILL TAKE SOME TIME BEFORE FEED HOLD

Description/Possible Causes	Remedy
T code numbers registered in Magazine data coincide because of the following: 1. Tool data were mixed up during ATC recovery work. 2. Tools with the same tool number exist in the data.	1. Remove tools from Spindle and Intermediate pot (in case of machines with ATC Single arm), execute M100 and M101 in this order in MDI mode to reset the tool data. 2. If tool numbers are registered in your own arrangement (not using M101), correct the duplicated tool number in D5100s of PMC group data.

No.2055 NO TOOL IN SPECIFIED MAGAZINE POT AT TOOL SEARCH.

Description/Possible Causes	Remedy
On the magazine with Single arm, it was detected that there was no tool in the indexed magazine pot because of the following: 1. There is no tool in the pot. 2. The optical axis of Photo sensor <LS53> is deflected. 3. Failure of Photo sensor <LS53>	1. Check if the magazine pot at the indexed position has a tool in it. If not, insert a tool in the pot. 2. Adjust the optical axis by bending the stay for Photo sensor <LS53> on Magazine pot so that Address X54.3 becomes “0” on Status diagnostic screen. 3. If X54.3 remains “1” when you block the optical axis by hand, the photo sensor is defective. Replace it.

Note: This message only applies to machines with Single arm for ATC.

No.2063 SPINDLE LOAD CHECK ERROR.

Description/Possible Causes	Remedy
Spindle load went below the specified value during monitoring by M90/M91 because of the following: 1. The threshold value (set in D1700s of PMC group data) has been set too high. 2. The tool is broken.	1. Check if the tool in question is broken or not, and replace it as necessary. 2. Check the actual spindle load without using M90/M91, and review the set threshold value.

Note: This message only applies to machines with KIWA's Spindle abnormal load monitoring system (option).

No.2067 SPINDLE OVER TRQ. ALARM

Description/Possible Causes	Remedy
Spindle load exceeded the specified value during monitoring by M90/M91 because of the following: 1. The threshold value (set in D1700s of PMC group data) has been set too low. 2. Machining conditions (spindle speed and cutting feed) are too severe. 3. The tool is worn, and doesn't cut well.	1. Check if the tool in question is worn or not, and replace it as necessary. 2. Check if the machining conditions are appropriate or not. 3. Check the actual spindle load without using M90/M91, and review the set threshold value.

Note: This message only applies to machines with KIWA's Spindle abnormal load monitoring system (option).

No.2086 CALLED PALLET IS NOT SET-UP.

Description/Possible Causes	Remedy
Pallet is not set up at execution of APC by M71/M72 because of the following: 1. Pallet setup button <PB57> or <PBX735> is not pressed (the lamp not lit). 2. The pallet at the setup station is not positioned correctly. (The side with Zero-degree plate facing front). 3. Pallet lock lever for the setup side pallet is lowered (released). 4. Sensor <LS15> for Pallet lock lever is not turned ON.	1. Position the setup side pallet so that its zero-degree plate faces front and close the front doors, then press Pallet setup button <PB57> or <PBX735>. 2. If the pallet lock lever has been lowered, pull it up. Please note that the lever goes up when the pallet is at 0, 90, 180 and 270 degrees, but it can be set up only at 0 degrees (the lock lever goes up furthest). 3. If the setup lamp still doesn't turn ON when pressing the setup button, check X10.2 on Status diagnostic screen. If it is "0", check the sensor <LS15> and replace it as necessary.

No.2087 WAITING SIDE PALLET IS NOT AT INITIAL POSITION<LS15>

Description/Possible Causes	Remedy
When Pallet setup button is pressed, it is not confirmed that the setup side pallet is at the initial position and that the pallet lock lever is raised because of the following: 1. Zero-deg. side of the setup side pallet doesn't face front. 2. Pallet lock lever is lowered. 3. Sensor <LS15> for Pallet lock lever is not turned ON.	1. Check if the zero-deg side of the setup side pallet faces front. If not, turn the pallet in that way. 2. If Pallet lock lever is in a lowered position, pull it up. 3. If the setup side pallet faces front and Pallet lock lever is up, check X10.2 on Status diagnostic screen. If it is "0", check the sensor <LS15> and replace it as necessary.

No.2088 MOTOR THERMAL OVERLOAD. PLEASE CHECK OL2,4,9R,9L.

Description/Possible Causes	Remedy
Thermal relay of any one of 2nd coolant, 4th coolant or Coil conveyor motors tripped because of the following: 1. Coolant pumps are clogged with chips. 2. Coil conveyors are jammed with chips. 3. Power cables for pump/conveyor motors are damaged. 4. Failure of pump/conveyor motors	1. Open the electric cabinet and check if any one of Thermal relay <OL2>, <OL4>, <OL9L> or <OL9R> has tripped. 2. If <OL9L> or <OL9R> has tripped, clean Coil conveyors and also inside the machine. 3. If <OL2> or <OL4> has tripped, clean the suction port of 2nd or 4th coolant pump in question. 4. If you still get the message after cleaning, perform insulation tests on pump/conveyor motors and their cables as well as measurement of electric current. If the insulation resistance is too low, or the electric current is too large, replace pump/conveyor motors or cables as necessary. 5. If above doesn't solve the problem, replace the thermal relay itself.

No.2089 CHIP CONVEYOR IN MANUAL MODE.

Description/Possible Causes	Remedy
M code M86 or M87 was commanded while Mode selection switch <SW12> for Chip conveyor was set for “Manual” because of the following: 1. Mode selection switch <SW12> for Chip conveyor was set for “Manual”. 2. Failure of the mode selection switch.	1. Set Mode selection switch for “Auto”. 2. If you still get the message, replace the mode selection switch.

Note: This message only applies to machines with Outside chip conveyor provided by KIWA (option).

No.2090 PALLET FRONT DOOR IS NOT CLOSED. <LS13>

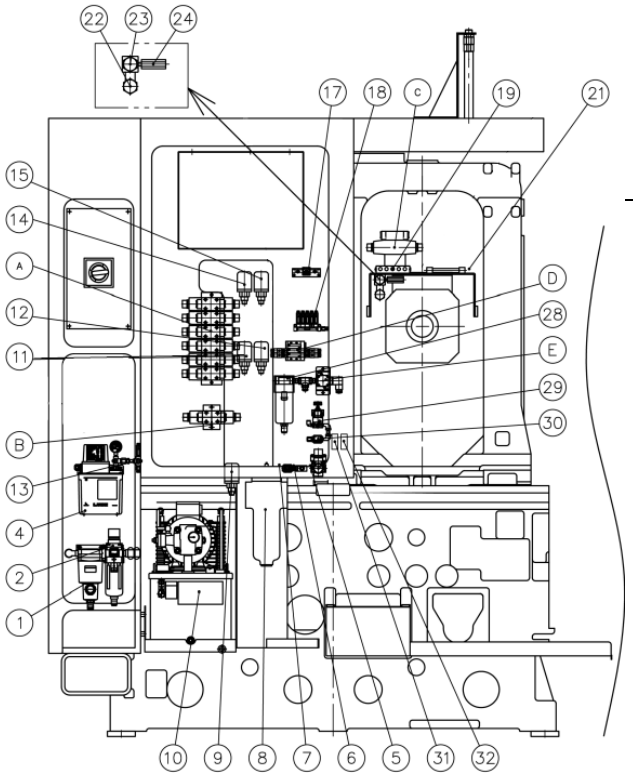
Description/Possible Causes	Remedy
Closed status of Front doors cannot be confirmed at M71/M72 because of the following: 1. Front doors are open. 2. The manual unlock key of Limit switch <LS13> for Front doors is set for UNLOCK. 3. Failure of Limit switch <LS13> for the front doors.	1. Close the front doors if open. 2. If you still get the message, check if the manual unlock key of Limit switch <LS13> is set for UNLOCK or not. 3. If you still get the message, replace the door limit switch.

No.2091 OPERATOR SIDE DOOR IS NOT CLOSED. <LS11>

Description/Possible Causes	Remedy
Closed status of Operator side door cannot be confirmed because of the following: 1. Operator side door is open. 2. The manual unlock key of Limit switch <LS11> for Operator side door is set for UNLOCK. 3. Failure of Limit switch <LS11> for Operator side door.	1. Close the operator side door if open. 2. If you still get the message, check if the manual unlock key of Limit switch <LS11> is set for UNLOCK or not. 3. If you still get the message, replace the door limit switch.

No.2092 NO PALLET SITTING CONFIRMATION <PS6>

Description/Possible Causes	Remedy
Sensor <PS6> (7 on the illustration below) for pallet sitting confirmation doesn't turn ON because of the following: 1. Chips get between Taper cones on Rotary table and Taper blocks on Pallet. 2. Insufficient air pressure 3. Insufficient air flow rate 4. Air leaking from the rotary joint area of Rotary table 5. Air leaking from gaps between Pallet and Taper blocks on it	1. Move the pallet to the APC position (perform G91G30Z0B0), and raise the pallet in Manual operation. Then open the operator door and clean surfaces between Rotary table and Pallet. 2. Disconnect the hose (on Rotary table side) from Sensor <PS6>, and plug the opened outlet of the sensor. Check if the pressure indicated on the sensor goes up to 0.15 MPa. If not, adjust Regulator (5 below) to raise the pressure. 3. If air pressure is OK, check the condition of Flow control valve (6 below). It should be opened by six turns from the closed position. 4. If, for reasons of machine deterioration, six turns are not enough, you may open it further until the pressure becomes 0.15 MPa. (There is a limit, though.)



No.2093 PALLET CHANGE CONDITIONS NOT READY - PLEASE EXECUTE 2ND ZERO POINT RETURN FOR Z AND B AXES.

Description/Possible Causes	Remedy
Pallet is not at the 2nd zero point (APC position) when M71 or M72 is commanded because of the following: 1. M71/M72 do not call their macro programs.	1. Check that there are Macro programs O9003 and O9004 in USER/LIBRARY folder. Also, check that “71” is set for Parameter No. 6073 and “72” for Parameter No. 6074. 2. If Macro programs O9003 and O9004 are not used, perform G91 G30 Z0 B0; before executing M71/M72.

No.2094

PALLET CHANGE CONDITIONS NOT READY
- WAITING PALLET (FRONT PALLET) IS NOT AT INITIAL POSITION.
- PLEASE MANUALLY ROTATE IT TO INITIAL POSITION AND PUSH UP THE LOCKING LEVER.

Description/Possible Causes	Remedy
When M71/M72 is commanded, it is not confirmed that the setup side pallet is at the initial position because of the following: 1. Zero-deg. side of the setup side pallet doesn't face front. 2. Pallet lock lever is lowered. 3. Sensor <LS15> for Pallet lock lever is not turned ON.	1. Check if the zero-deg side of the setup side pallet faces front. If not, turn the pallet in that way. 2. If Pallet lock lever is in a lowered position, pull it up. 3. If the setup side pallet faces front and Pallet lock lever is up, check X10.2 on Status diagnostic screen. If it is "0", check the sensor <LS15> and adjust/replace it as necessary.

No.2095

PALLET CHANGE CONDITIONS NOT READY
- ATC SLIDE COVER IS NOT CLOSED.
- PLEASE CLOSE IT BY USING M172 CODE.

Description/Possible Causes	Remedy
When M71/M72 is commanded, it is not confirmed that the ATC shutter is closed because of the following: 1. ATC shutter is open. 2. Sensor <LS10> for ATC shutter (closed) is not turned ON.	1. If ATC shutter is open, close it by M172 or ATC manual operation. 2. If you get the message even though ATC shutter is closed, check Sensor <LS10> for ATC shutter closed. If the lamp is OFF, or only the orange lamp is lit, adjust the position of the sensor so that the green lamp is lit.

No.2096 PALLET CHANGE CONDITIONS NOT READY - ATC DOUBLE ARM IS NOT AT HOME POSITION OR - SPINDLE TOOL IS NOT CLAMPED.

Description/Possible Causes	Remedy
When M71/M72 is commanded, it is not confirmed that the ATC arm is at Home position or that Spindle is clamped because of the following: 1. Spindle is unclamped. 2. ATC arm is not at Home position.	1. Clamp the spindle. If the message appears even though the spindle is clamped, check X4.0 and X4.1 on Status diagnostic screen, and Sensors <LS1> and <LS2>; adjust or replace them as necessary. 2. If the spindle is clamped, bring the ATC arm to Home position by M167 in MDI mode or by ATC manual operation panel.

No.2097 PALLET CHANGE CONDITIONS NOT READY - MARPOSS IS NOT AT DOWN POSITION.

Description/Possible Causes	Remedy
When M71/M72 is commanded, it is not confirmed that MARPOSS probe (option) is lowered because of the following: 1. MARPOSS probe is in the lifted position. 2. Failure of Sensors <LS135/LS136> for MARPOSS probe up/down.	1. If the probe has been popped out of the cover, lower it down by M69. 2. If the probe is contained in the cover, check X13.5 and X13.6 on Status diagnostic screen; X13.5 should be “0” and X136 “1”. If not, check the sensors on the cylinder inside the MARPOSS probe unit, and adjust or replace them as necessary.

No.2098

CYCLE START IS PROHIBITED
BECAUSE KEEP RELAY K57.2=1, PALLET UP AND DOWN SENSORS ARE IGNORED.
- SET K57.2=0 FOR NORMAL OPERATION.

Description/Possible Causes	Remedy
Keep Relay K57.2 is set for “1”.	Set Keep Relay K57.2 for “0”.

No.2099 OPERATOR SIDE DOOR ISN'T LOCKED. <LS11>

Description/Possible Causes	Remedy
When Cycle start button is pressed in AUTO mode, the locked status of Operator side door cannot be confirmed because of the following: 1. The lamp of Door open request button is lit. 2. Failure of Limit switch <LS11> for Operator side door.	1. Press the door open request button to turn its lamp OFF. 2. Open the Operator side door once and close it. 3. If you still get the message, check and replace the door limit switch as necessary.

No.2100 EXTERNAL CHIP CONVEYOR ALARM THERMAL RELAY IS TRIPPING. <OL10>

Description/Possible Causes	Remedy
Outside chip conveyor (option) is not running, or Thermal relay <OL10> for Chip conveyor motor has tripped because of the following: 1. The chip conveyor is jammed with chips. 2. Failure of chip conveyor motor or its power cable 3. Failure of the thermal relay	1. Clean the chip conveyor. Measure the insulation resistance of its motor and power cable, and the electric current. If there is any deterioration, replace the motor or cable as necessary. 2. If the message still appears, replace the thermal relay.

No.2130 SINGLE ARM IS NOT HOME POS.

Description/Possible Causes	Remedy
After the machine gets ready for operation, it is not confirmed that Single arm is at Home position because of the following: 1. While the power was off, Single arm moved due to residual pressure in the hydraulic cylinder. 2. Failure of Solenoid valves <SOL542> to <SOL547>, or their driving relays <CR62> to <CR67> 3. Failure of Sensors <LS50/51/52/55/56>	1. If Single arm has moved due to residual pressure, press the manual button on the side of Solenoid valves to move the cylinder manually, returning Single arm to Home position. 2. If the message appears even though Single arm is at Home position, check X54.0 to X54.2, X54.5 and X54.6 on Status diagnostic screen; X54.0 and X54.6 should be “1”, and others “0”. Otherwise, check the sensors for Single arm cylinders and replace them as necessary. 3. Try to move Single arm by Single arm manual operation panel. If it doesn’t move, failure of Solenoid valves or Relays is suspected; check and replace them as necessary.

Note: This message only applies to machines with Single arm for ATC.

No.2150 DISCHARGE PRESSURE OF COOLANT THROUGH SPINDLE DROPPED. PLEASE CHECK ITS FILTER.

Description/Possible Causes	Remedy
When starting optional 3rd coolant (Coolant through spindle), clogging of its filter is detected because of the following: 1. Filter of 3rd coolant is clogged. 2. 3rd coolant pump is clogged. 3. Failure of Sensor for 3rd coolant filter	1. Replace the filter. 2. Clean the suction port of 3rd coolant pump. Also depending on the condition of contamination, clean the coolant tank including replacement of the entire coolant fluid. 3. If the message still appears, check and replace the sensor for 3rd coolant filter as necessary.

Note: This message only applies to machines with Coolant through spindle system with Filter switch.

No.2151 DISCHARGE PRESSURE OF COOLANT THROUGH SPINDLE DROPPED. <PS7>

Description/Possible Causes	Remedy
When starting optional 3rd coolant (Coolant through spindle), coolant pressure cannot be confirmed because of the following: 1. 3rd coolant pump is clogged. 2. Failure of Pressure sensor <PS7>	1. Clean the suction port of 3rd coolant pump. Also depending on the condition of contamination, clean the coolant tank including replacement of the entire coolant fluid. 2. If the message still appears, check and replace the pressure sensor as necessary.

Note: This message only applies to machines with Coolant through spindle system with Pressure switch.

No.2152 3RD COOLANT UNIT ERROR

Description/Possible Causes	Remedy
There is something wrong with the external 3rd coolant unit.	Please refer to the manual of External 3rd coolant unit.

Note: This message only applies to machines with external Coolant through spindle system.

No.2161

CYCLE START IS PROHIBITED
BECAUSE KEEP RELAY K54.7=1,
DOUBLE ARM MAINTENANCE MODE
- SET K54.7=0 FOR NORMAL OPERATION.

Description/Possible Causes	Remedy
Keep Relay K54.7 is set for “1”.	Set Keep Relay K54.7 for “0”.

No.2162 PLEASE ROTATE MAGAZINE, AND RETRY MANUAL ATC ACTION.

Description/Possible Causes	Remedy
Sliding of Tool pot or movement of Single arm is commanded when the magazine chain is not positioned correctly because of the following: 1. Magazine chain is stopped at a wrong position.	1. Move the magazine by ATC manual operation panel.

No.2200 SPINDLE COOLER (OIL COOLER) UNIT ALARM DETECTED.

Description/Possible Causes	Remedy
Alarm occurred on the oil chiller for Spindle cooling.	Please refer to the manual of the oil chiller.

No.2300 SPINDLE CORE CHILLER ALARM DETECTED.

Description/Possible Causes	Remedy
Alarm occurred on the cooling unit for optional Spindle core cooling system.	Please refer to the manual of the cooling unit.

Note: This message only applies to machines with optional Spindle core cooling system.

No.2400 FILTER OF CHILLER CLOGGED.

Description/Possible Causes	Remedy
Filter for optional Spindle core cooling system is detected to be clogged because of the following: 1. Filter is clogged. 2. Failure of Filter sensor	1. Replace the filter. Depending on the condition of contamination, clean the coolant tank including replacement of the entire coolant fluid. 2. If the message still appears, check and replace the filter sensor as necessary.

Note: This message only applies to machines with optional Spindle core cooling system.

No.2720 MACHINE LOCK FUNCTION IS NOT AVAILABLE ON 1ST REFERENCE POINT.

Description/Possible Causes	Remedy
Machine lock button was pressed when the machine coordinate of one or more of X/Y/Z/B axes is “0”.	Press Machine lock button with axes positioned at other than their 1st zero points.

No.2721 MACHINE LOCK FUNCTION IS VALID.

Description/Possible Causes	Remedy
Machine lock button is pressed and the machine lock function is effective.	Press Machine lock button again to disable the machine lock function.

No.2722 MACHINE LOCK PB IS IGNORED WHILE AUTOMATIC OPERATION.

Description/Possible Causes	Remedy
Machine lock button was pressed during automatic operation.	(There is nothing particular to do.)

No.2723 CYCLE START PB IS IGNORED. PLEASE COMPLETE MANUAL ZERO RETURN AT ALL AXIS.

Description/Possible Causes	Remedy
You tried to turn Machine lock function off while all the axes are not at their 1st zero points (machine coordinate “0”).	Move all the axes to their 1st zero points, then press Machine lock button again to disable Machine lock function.

No.2724 IT IS NECESSARY TO PUSH AND HOLD BUTTON TO ENABLE MACHINE LOCK FUNCTION.

Description/Possible Causes	Remedy
Machine lock button was only pressed for a short time.	Machine lock button must be pressed for several seconds.

No.2800 PROBE ERROR(RENISHAW)

Description/Possible Causes	Remedy
There was an error in RENISHAW spindle probe unit because of the following: 1. M75 is commanded without a spindle probe in the spindle. 2. Spindle probe is out of the range of the receiving unit. 3. The battery for Spindle probe is low.	1. Confirm that Spindle probe is put in the spindle and clamped. 2. Check that Spindle probe and Receiving unit are not separated (communication blocked) by fixture, etc. 3. Check the battery in Spindle probe and replace it if necessary. 4. If the message still appears, please refer to RENISHAW's manual.

Note: This message only applies to machines with optional Spindle probe unit.

No.2801 PROBE BATTERY VOLTAGE LOW(RENISHAW)

Description/Possible Causes	Remedy
Low battery is detected in RENISHAW spindle probe unit.	Replace the battery.

Note: This message only applies to machines with optional Spindle probe unit.

No.2802 OVER TRAVEL(METROL) Z-AXIS MINUS MOVEMENT INTERLOCK

Description/Possible Causes	Remedy
Overtravel signal was detected when optional METROL touch sensor was pushed too much because of the following: 1. The tip of the tool is in contact with the touch sensor without G31 used in the program. 2. Failure of METROL touch sensor	1. Check that G31 is used in the program before touching the tool to the touch sensor. 2. If the program is OK, replace the touch sensor.

Note: This message only applies to machines with optional METROL touch sensor.

No.2911 X-AXIS PLUS MOVEMENT INTERLOCK

Description/Possible Causes	Remedy
X axis was commanded to move into the area set by Position switches in Plus direction.	1. Move X axis in Minus direction in Handle mode. 2. Check the program and make sure the machine won't enter the prohibited area.

No.2912 X-AXIS MINUS MOVEMENT INTERLOCK

Description/Possible Causes	Remedy
X axis was commanded to move into the area set by Position switches in Minus direction.	1. Move X axis in Plus direction in Handle mode. 2. Check the program and make sure the machine won't enter the prohibited area.

No.2921 Y-AXIS PLUS MOVEMENT INTERLOCK

Description/Possible Causes	Remedy
Y axis was commanded to move into the area set by Position switches in Plus direction.	1. Move Y axis in Minus direction in Handle mode. 2. Check the program and make sure the machine won't enter the prohibited area.

No.2922 Y-AXIS MINUS MOVEMENT INTERLOCK

Description/Possible Causes	Remedy
Y axis was commanded to move into the area set by Position switches in Minus direction. Also, Y axis tried to enter the Pallet-Spindle interference area in Minus direction.	1. Move Y axis in Plus direction in Handle mode. 2. Check the program and make sure the machine won't enter the prohibited area.

No.2931 Z-AXIS PLUS MOVEMENT INTERLOCK

Description/Possible Causes	Remedy
Z axis was commanded to move into the area set by Position switches in Plus direction.	1. Move Z axis in Minus direction in Handle mode. 2. Check the program and make sure the machine won't enter the prohibited area.

No.2932 Z-AXIS MINUS MOVEMENT INTERLOCK

Description/Possible Causes	Remedy
Z axis was commanded to move into the area set by Position switches in Minus direction. Also, Z axis tried to enter the Pallet-Spindle interference area in Minus direction.	1. Move Z axis in Plus direction in Handle mode. 2. Check the program and make sure the machine won't enter the prohibited area.

No.2999 ACCUMULATED RUN HOUR WAS DELETED.

Description/Possible Causes	Remedy
The accumulated run hour data stored in D9000s of PMC group data has been reset.	(There is nothing particular to do.)